FEDERAL AID
ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

PROJECT TITLE: Habitat assessment of potential wood bison relocation sites in Alaska

PRINCIPAL INVESTIGATOR: Craig Gardner

COOPERATORS: None

FEDERAL AID GRANT PROGRAM: Wildlife Restoration

GRANT AND SEGMENT NR: W-33-3

PROJECT NR: 9.10

WORK LOCATION: Interior Alaska with special emphasis on known historic wood bison range excluding areas currently supporting plains bison, boroughs, national parks, and large agricultural areas.

STATE: Alaska

PERIOD: 1 July 2004–30 June 2005

I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION

OBJECTIVE 1: To identify suitable bison habitat areas within the historic wood bison range in Alaska that can sustain ≥ 400 wood bison. Measurable criteria will be magnitude of mesic and wet meadow habitats; accessibility of calving, summer, and winter habitats; quantity of preferred forage species; and conflicts between existing wildlife or land use practices and wood bison.

I estimated meadow availability, bison forage abundance, and summer and winter forage accessibility in the Minto Flats. The amount of suitable wood bison habitat in the Minto Flats is about 2100 km^2 (815 mi^2) of which 25.8% is meadow habitat. On 28 July 2004, we sampled 50 randomly selected meadows to estimate quantity of wood bison forage. Preliminary analysis indicates that the meadow characteristics and the amount of preferred wood bison forage is comparable to wood bison ranges in Canada. Access to about 25% of range, primarily in the southeastern portion of the Flats would be restricted during the summer due to wet, boggy conditions. On 16 March 2004, I evaluated snow conditions by sampling 15 randomly selected sites. The average snow depth sampling was 40.4 cm (15.9

in) and hard pack snow or ice layers were uncommon. These conditions would not have restricted bison foraging. Based on the abundance and availability of summer and winter range, Minto Flats can support 400–500 bison.

I estimated the amount of suitable wood bison habitat in the Innoko and Yukon River drainages between Shageluk and Paimut Slough using Landsat TM imagery produced by Ducks Unlimited and aerial survey. I measured wood bison preferred forage species abundance and summer and winter forage accessibility by sampling 75 randomly selected meadows during 29–30 July 2004. This area offers about 3500 km^2 (1350 mi^2) of suitable habitat of which 7.6% is sedge/grass meadow. Abundance of preferred forage species is comparable to wood bison ranges in Canada that support ≥ 1500 wood bison. During May and early June 2005, we monitored water conditions following snowmelt to evaluate spring and summer range accessibility. Spring flooding is a concern. The estimated amount of available range during May and early June ranged from 30 to 40% and was located primarily on the western edge of the valley along the Yukon River. I plan to further evaluate spring/early summer range accessibility by visiting the area next spring and talking with village elders to gain a more historical perspective concerning spring flooding. On 3 March 2005, snow conditions were evaluated by sampling 8 randomly selected sites. Average snow depth was 55.4 cm with breakable crust layers scattered throughout the snowpack. Snow depths are greater compared to Minto Flats and Yukon Flats but are not limiting. Based on forage abundance, the lower Innoko/Yukon valley could support ≥ 400 bison.

We evaluated wood bison forage quantity and quality in the Aniak River valley on 30 July 2004. Forage abundance was inadequate to support ≥ 400 wood bison considered to be the minimum viable herd size. This area will not be considered for future wood bison reintroduction.

I evaluated snow conditions in the Hogatza River valley during March 2005. Cursory evaluation of this area indicated high quality wood bison forage was available, but winter accessibility was not known. Average snow depth was 94 cm and would restrict movements and foraging. These data are similar to snow data collected by the Bureau of Land Management since 1996 indicating that deep snow conditions are common in this area. The Hogatza River valley will no longer be considered as a potential area for wood bison reintroduction.

II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD

JOB 1: Habitat identification using literature review, local expertise, and landsat imagery
Assess summer and calving habitat suitability
Assess winter range accessibility

I continued to review the literature on wood bison food habits, seasonal habitat selection, home range size, and grazing ecology to better define what would be suitable wood bison range in Alaska. I identified possible ranges based on presence or absence of meadow habitats by combining information obtained from the literature, area biologists and local area naturalists with aerial and satellite photography. Most of the wood bison historic range in

Alaska is included in Landsat TM imagery (30 m pixel) produced by Ducks Unlimited. This imagery has proven to be adequate to identify and quantify meadow habitats.

I originally identified 5 areas that appeared to offer suitable wood bison habitat for further study. I evaluated forage abundance and accessibility in Minto Flats (July 2004), lower Innoko/Yukon Valley (July 2004), and lower Aniak River (July 2004) and concluded the forage availability was adequate to support ≥ 400 wood bison on Minto Flats and lower Innoko/Yukon Valley. (North Fork of the Kuskokwim River valley was evaluated previously, in August 2003.) Suitable forage abundance appeared to be adequate in the lower Hogatza River valley, but this area will no longer be considered as potential wood bison range because average snow depths are limiting to wood bison.

JOB 2: Potential land use conflicts-literature review and visiting communities

We consulted with land managers, university researchers, and local residents and identified potential conflicts with other wildlife and land uses. To date, there are no data indicating there would be significant impacts on indigenous wildlife or vegetation due to wood bison, but there is agreement on the need for studies to monitor impacts if wood bison are reintroduced. Potential land use conflicts will be identified during public planning efforts. No federal funds were spent on this job.

JOB 3: Public involvement, report writing

This was the second year of the project. This report summarizes results to date.

I attended 2 public planning meetings of the Wood Bison Restoration Advisory Group during May and June 2005.

III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD

None

IV. PUBLICATIONS

V. RECOMMENDATIONS FOR THIS PROJECT

VI. APPENDIX

VII. PROJECT COSTS FOR THIS SEGMENT PERIOD

Stewardship Investment items purchased: none

FEDERAL AID SHARE $35,475 + STATE SHARE $ 11,825 = TOTAL $47,300

VIII. PREPARED BY:

Craig Gardner
Wildlife Biologist III

SUBMITTED BY:

Mark McNay
Research Coordinator